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A NEW COSTA RICAN SALAMANDER (GENUS *OEDIPINA*)  
WITH A RE-EXAMINATION OF *O. COLLARIS*  
AND *O. SERPENS*

By ARDEN H. BRAME, JR.



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DAVID K. CALDWELL

*Editor*

A NEW COSTA RICAN SALAMANDER (GENUS *OEDIPINA*)  
WITH A RE-EXAMINATION OF *O. COLLARIS*  
AND *O. SERPENS*

By ARDEN H. BRAME, JR.<sup>1</sup>

**ABSTRACT:** The plethodontid salamander, *Oedipina collaris*, is redescribed and shown to be a valid form with *O. serpens* relegated to the position of a junior synonym under *collaris*. A new species, *Oedipina poelzi*, is described from the Cordillera Central of Costa Rica. Its relationships are shown to be with *O. collaris*.

The discovery of an undescribed long legged and strikingly colored *Oedipina* from the vicinity of El Angel Waterfall in north-central Costa Rica provided the impetus for study of this complex genus. The present paper is concerned with the description of the new form and consideration of the validity of *Oedipina collaris* and *O. serpens*.

In 1907, Stejneger described an elongate salamander, *Spelerpes collaris* (= *Oedipina collaris*), from a single very large adult. Stejneger's original description is inadequate because several additional related forms are now known which approach most of the characters in his description. It is necessary, therefore, to rediagnose and redescribe the holotype, mentioning important characters not covered by Stejneger.

*Oedipina collaris* (Stejneger, 1907)

Figure 1A

1907. *Spelerpes collaris* Stejneger, Proc. U. S. Natl. Mus., 32(1538): 465-6.

1924. *Oedipus collaris* Dunn, Zool. Ser., Field Mus. Nat. Hist., 12: 99.

1944. *Oedipina collaris* Taylor, Univ. Kansas Sci. Bull. 30, Pt. I (12): 226.

1949. *Oedipina serpens* Taylor, Univ. Kansas Sci. Bull. 33, Pt. I (6): 286-8.

**Holotype:** USNM 37350, adult male, from Topaz Mine, Nicaragua, "90 miles N. W. of Bluefields, and 50 miles back in direct line from the coast"; elevation 400 feet (120 meters).

**Referred Material:** KUMNH 23815, adult male (holotype of *O. serpens*) from Morehouse Finca, 5 miles southwest of Turrialba, Provincia de Cartago, Costa Rica; and MCZ 9831, adult male, from La Loma, on the trail from Chiriquito to Boquete, Provincia de Bocas del Toro, western Panama.

**Diagnosis:** *Oedipina collaris* is the largest species in the genus both in length (57.7 to 71.9 mm. snout-vent length) and in bulk. In addition, it is distinguished from all other species of *Oedipina* by the following combination of characters: long snout that becomes progressively narrower toward the tip ("sharp"), (see Fig. 1A, and Table 2); large numbers of maxillary (80 to 98) and dentary teeth (85 to 110); extremely long and robust limbs (in proportion

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to snout-vent length) with only 9 to 10 costal folds remaining uncovered when limbs are appressed to sides of trunk; 19 costal grooves per side; eyes small in proportion to head width (1.7 to 2.0 mm. at head width of 6.3 to 7.9 mm.); color drab lead-black over entire body (Panamanian specimen with lateral thin grayish stripes).

*Description of Holotype:* Adult male, snout very long (see Fig. 1A, and Table 2), narrowing progressively towards the tip ("sharp"); small well defined mental hedonic gland at tip of chin; nostril small, labial protuberances strongly defined; canthus rostralis not strongly arched. Snout-vent length 9.1 times head width. Vomerine teeth 8 left, 14 right, extending about one mm. past the lateral border of the internal nares; maxillary teeth 42-41. Two premaxillary teeth piercing lip. Tail missing. Limbs long, allowing 10 costal folds to remain uncovered when appressed to sides of trunk; snout-vent length 5.8 times right hind limb. Webbing of hands and feet extensive but tips of middle three toes free, webbing very thick causing toes to appear nearly united; digits flattened. Fingers in order of decreasing length: 3, 4, 2, 1; toes in order of decreasing length: 3, 4, 2, 5, 1.

*Measurements In Millimeters:* Head width 7.9; anterior rim of orbit to snout 4.4; anterior rim of orbit to external nares 3.6; horizontal orbital diameter 2.0; interorbital distance 2.8; distance between vomerine teeth and premaxillary teeth 2.9;; distance between parasphenoid teeth and premaxillary teeth 3.7; internal choanae (nares) to premaxillary teeth 2.6; distance separating internal choanae 2.3; snout to posterior angle of vent 71.9; axilla-groin length 45.2; hind limb length 12.4; width of right foot 4.

*Coloration In Alcohol:* Lead black on all body surfaces except for pale white areas at the edge of the gular fold and semi-lunar pale white marks at the insertion of the legs, bend of the elbow and of the knee; the side of the head shows some indications of being pale.

*Remarks:* Taylor (1949) described *Oedipina serpens* from a single Costa Rican specimen. He discussed differences of this specimen from *O. collaris* and presented a table (p. 288) contrasting the two species. This table indicates that a number of characters separate them, but from recent examination of both holotypes it is evident that Taylor did not examine the holotype of *collaris*, but relied wholly upon Stejneger's description and Dunn's (1926) additional notes.

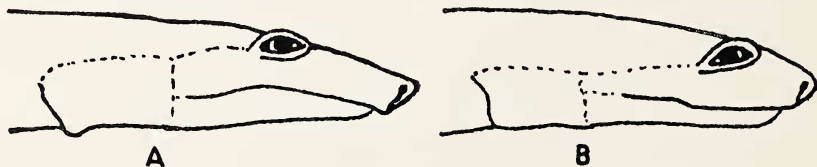


Fig. 1. A. Lateral view of the head and snout of the holotype (USNM 37350) of *Oedipina collaris* (Stejneger, 1907), an adult male.  
B. Lateral view of the head and snout of the holotype (LACM 1722) of *Oedipina poelzi*, an adult male.

Some of the characters used by Taylor (1949) in his table are discussed below. Taylor lists *Oedipina collaris* as having a sharp snout and *Oedipina serpens* as having a blunt truncate snout; here he relies on Dunn's (1926) terminology where Dunn used sharp merely to indicate a progressive narrowing of the snout towards the tip, but Taylor apparently ignores Stejneger's (1907) statement (truncate snout) used for the same specimen. Indeed, both specimens may be said to have "sharp" snouts with truncate tips.

Taylor's head width measurement for *O. serpens* is considerably larger (8.8 mm.) than mine (7.7 mm.) and my head width for *O. collaris* (which is just 1.9 mm. snout-vent length longer than *serpens*) is 7.9 mm. Therefore, the snout-vent length is 9.1 times the head width in both holotypes, not 7.5 times for *collaris* and 8.4 times for *serpens* as Taylor reports. In addition, *O. collaris* has 8 left and 14 right vomerine teeth (not 9 per side as first reported by Dunn and later by Taylor who apparently followed Dunn); I counted 16 left and 17 right vomerine teeth on *O. serpens* which is higher than Taylor's 15 per side. Numbers of vomerine teeth are more variable than maxillary teeth as can be seen in Table 1.

I counted 10 costal folds between the appressed limbs of *O. collaris* and  $9\frac{1}{2}$  between the appressed limbs of *O. serpens*, whereas Taylor mentioned 11 (again apparently *fide* Dunn, 1926) versus 9 respectively. Of the other characters which are either of a highly variable or subjective nature, only slight differences in the shape of the feet seem worth mentioning and it may be pointed out here that foot shape and its associated webbing are quite variable in the genus *Oedipina*. *O. collaris* has a slightly broader foot 4.0 mm. versus 3.6 mm. for *O. serpens* and the feet are more flattened in *collaris*, characters not worthy of taxonomic consideration in this genus. The comparative measurements of *O. collaris* and *O. serpens* given in Tables 1 and 2 indicate that there is only one species involved, and this is further strengthened by the high degree of similarity in coloration, both specimens being uniformly lead black. It is apparent that *Oedipina serpens* is a junior synonym of *Oedipina collaris*.

A third specimen of *O. collaris* from Panama differs primarily in being smaller (57.7 mm. snout-vent length) and in having a lateral stripe similar to the species of *Oedipina* being described below. Dunn (1926, 431-32) reported the specimen in life to be black above and below with a gray band on each side between insertions of the legs; snout lighter, tinged with brown; tail with many white flecks on sides.

*Range:* (See map, Fig. 2), *Oedipina collaris* is represented by three specimens from the Caribbean drainage of three different countries: central-eastern Nicaragua, northeastern Costa Rica and west-northwestern Panama from 400 to 2000 feet (120 to 610 meters) elevation.

A university of Southern California field team, working in Costa Rica in the spring and summer of 1959, collected a brightly colored *Oedipina* from the vicinity of El Angel Waterfall and from former Costa Rican President Mario Echandi's Finca. Due to the large size, robust shape, and long limbs of these organisms, it was immediately evident that they were either *O. collaris*

or *O. serpens* (= *O. collaris*) or representatives of an undescribed related species. Examination of the holotypes of the above indicates that the new material represents a distinct form, and I take great pleasure in naming it for my



Fig. 2. Map showing ranges of *Oedipina poelzi*, open circles: 1 and 2 indicating area of type locality, vicinity of El Angel Waterfall; 3 indicating the area of Cascajal de Las Nubes; and 4 indicating the locality along the road to Peralta, 6.2 miles from the Rio Reventazon Bridge, from Turrialba. Range for *Oedipina collaris*, closed circles: 5 indicating type locality, 90 miles northwest of Bluefields, Nicaragua; 6 indicating Morehouse Finca, 5 miles southwest of Turrialba, Costa Rica; and 7 indicating La Loma, on the trail from Chiriquicito to Boquete, Panama.



German friend, Friedrich Pölz, of Radbruch, Über Winsen, who has greatly aided me in my herpetological endeavours:

***Oedipina poelzi*, NEW SPECIES**

Figures 1B, and 3

*Holotype*: LACM 1772, adult male, from the area of the stone quarry in the vicinity of El Angel Waterfall (former American Cinchona Plantation and Isla Bonita of Taylor, 1952,), 3.8 miles by road south of Cariblanco (5 miles north of Vara Blanca), along the Vara Blanca-Puerto Viejo Road, Provincia de Heredia-Provincia de Alajuela boundary, Costa Rica; elevation 5000 feet (1520 meters); collected by Arnold G. Kluge, Robert J. Lavenberg, and the author at 1:00 P.M., April 3, 1959.

*Paratypes*: (41 specimens total), CRE 74.1-7, CRE 75.2-5, and CRE 76.1 (12 specimens) same data as for holotype; CRE 304.1-2, same locality as holotype, collected by John L. Mohr, Thomas R. Pray, and Jay M. Savage, February 1, 1960; LACM 1723-6 same locality as holotype, collected by James Kezer, June 2, 1962; UF 10456-8, from the area of the type locality, collected by Archie Carr, December 2, 1956; UMMZ 123674, from the type locality, collected by Charles F. Walker, William Bussing, and David B. Wake, August 8, 1961; UMMZ 119528-30, UMMZ 123665-73, near the holotype locality, 12 to 14.1 miles north of Vara Blanca from 4400 to 5100 feet (1340 to 1555 meters) elevation on the east slope of Volcan Poas, Provincia de Alajuela, collected by Priscella and Andrew Starrett and Thomas M. Uzzell, Jr., August 6, 1957; UMMZ 119527, along the road to Peralta, 6.2 miles north of the Rio Reventazon Bridge (from Turrialba), Provincia de Cartago, about 3000 feet (915 meters) elevation, collected by Priscella and Andrew Starrett and Thomas M. Uzzell, Jr., August 3, 1957; CRE 174.1-6, from the finca of Mario Echandi, Cascajal de Las Nubes, Provincia de San Jose, collected by Arnold G. Kluge, Alfonso Jimenez, John de Abate, and the author, between 1:00 and 4:00 P.M., June 1, 1959.

*Diagnosis*: *Oedipina poelzi* is distinguished from its closest relative, *Oedipina collaris*, by its short, broad, blunt snout, with short interorbital distance (1.7 to 2.1 mm. in large adults versus 3.0 to 3.7 mm. in *collaris*); short distance between anterior rim of orbit and external nares (1.8 to 2.1 mm. in large adults versus 2.7 to 2.9 mm. in *collaris*); (See Table 2 for additional comparative head measurements and Fig. 1 for head shape comparisons); its fewer numbers of maxillary teeth (42 to 70 total with mean of 53 in 29 adults versus 80 to 98 in *collaris*); its smaller size (snout-vent length of large adults from 45.1 to 63.6 mm. with mean of 55.6 mm. in 29 specimens versus 57.7 to 71.6 mm. in *collaris*); right foot moderately large (2.1 to 2.4 mm. in width in large adults versus 2.7 to 4.0 in *collaris*); and in its striking dorsal and lateral coloration, consisting of a dorsolateral band of medium to dark brown and a thin lateral stripe of cream or yellowish white contrasted sharply with the deep-black venter (see Fig. 3).



Fig. 3. Lateral view of the holotype (LACM 1722) of *Oedipina poelzi*, an adult male.



The combination of long limbs (hind limbs 6.7 to 10.0 mm., mean of 8.4 mm., in 29 adults over 45 mm. snout-vent length); moderate numbers of costal grooves (19 per side, in all but one individual with 18, in 42 specimens); wide head (5.1 to 6.7 mm., mean 6.1 mm., in 29 adults over 45 mm. standard length); moderate numbers of maxillary teeth, and unique coloration will distinguish *Oedipina poelzi* from all other forms in the genus.

*Description Of Holotype:* Adult male, snout short (see Fig. 1B) and blunt, truncate at tip; small well defined mental hedonic gland at tip of chin; nostril small, labial protuberances well developed; canthus rostralis moderately arched. Snout-vent length 9.1 times head width, and 5.9 times snout-gular fold length; vomine teeth 10 left, 16 right, extending just past the lateral posterior border of the internal nares. Maxillary teeth 25-29, extending posteriorly three-fourths distance of eyeball. Two premaxillary teeth piercing lip. Postorbital groove distinct, extending posteriorly from eye as small depression for 2.4 mm., sharply proceeding ventrally and extending across gular area parallel to and 2.0 mm. anterior to gular fold. Tail laterally compressed with no basal constriction; 1.4 times snout-vent length. Postiliac gland evident as pale spot. Limbs long,  $9\frac{1}{2}$  costal folds remaining uncovered when appressed to sides of trunk; snout-vent length 7.4 times right fore limb, and 6.5 times right hind limb. Fingers and toes long and linear, semiconical in shape, not very flattened; thin webbing of hands and feet extensive but tips of middle three toes free; toes 1 and 5 fused to 2 and 4 respectively. Fingers in order of decreasing length: 3, 4, 2, 1; toes in order of decreasing length: 3, 4, 2, 5, 1.

*Measurements In Millimeters:* Head width 6.4; snout-gular fold (head length) 9.8; head depth at posterior angle of jaw 3.6; eyelid length 2.9; eyelid width 1.3; anterior rim of orbit to snout 2.8; anterior rim of orbit to external nares 2.1; horizontal orbital diameter 1.9; interorbital distance 1.8; distance between vomerine teeth and premaxillary teeth 3.0; internal choanae (nares) to premaxillary teeth 1.8; distance separating external nares 2.0; snout to fore limb 15.0; snout projection beyond mandible .9; snout to posterior angle of vent 58.1; snout to anterior angle of vent 55.8; axilla-groin length 36.7; fore limb length 7.9; hind limb length 9.0; width of right hand 1.2; width of right foot 2.0; tail length 80.8; tail depth at base 3.7; tail width at base 3.3.

*Coloration In Life:* Medium dark brown dorsally forming a broad band that passes well on to the tail, and becomes much lighter there; an indistinct thin white stripe laterally stopping abruptly at the dense black ground color below the mid lateral area and on the venter; tail coloring less uniform with brown patches overlying the dark black ground color; limbs mostly of black ground color with a few small brown patches above; a few whitish guanophores laterally on tail and fewer on venter of tail, many tiny guanophores on tail dorsally; numerous small guanophores on trunk venter, with larger ones on gular area; eyes orange-brassy; upper lip light white; head with diffuse brown patches overlying the black color; a dark ring of pigment around the cloacal slit. In alcohol, the dorsal brown band and lateral white stripes barely evident, but guanophores still clearly discernible, (see Fig. 3).

TABLE 1. Data on *Oedipina collaris* and *O. poelzi*

|                    |   | Snout-Vent<br>Length | Axilla-Groin<br>Length | Head Width | Hind Limb Length | Coastal Folds Be-<br>tween Appressed<br>Limbs | Snout-Gular Fold<br>Length | Maxillary Teeth | Vomerine Teeth | Tail Length |
|--------------------|---|----------------------|------------------------|------------|------------------|-----------------------------------------------|----------------------------|-----------------|----------------|-------------|
| <i>O. collaris</i> |   |                      |                        |            |                  |                                               |                            |                 |                |             |
| USNM 37350         | ♂ | 71.9                 | 45.2                   | 7.9        | 12.4             | 10                                            | —                          | 83              | 22             | —           |
| KUMNH 23815        | ♂ | 70.0                 | 45.2                   | 7.7        | 13.6             | 9½                                            | 11.9                       | 98              | 33             | 130.2       |
| MCZ 9832           | ♂ | 57.7                 | 36.0                   | 6.3        | 10.7             | 9                                             | 9.9                        | 80              | 22             | 155.2       |
| <i>O. poelzi</i>   |   |                      |                        |            |                  |                                               |                            |                 |                |             |
| UMMZ 123668        | ♂ | 62.9                 | 41.8                   | 6.4        | 9.7              | 10                                            | 10.0                       | 60              | 26             | 106.2       |
| UMMZ 123666        | ♂ | 61.3                 | 38.7                   | 6.5        | 9.5              | 9                                             | 10.1                       | 62              | 23             | 87.0        |
| UMMZ 123671        | ♂ | 59.2                 | 37.9                   | 6.7        | 10.0             | 10                                            | 9.3                        | 52              | 24             | 117.2       |
| UF 10456           | ♂ | 58.7                 | 37.4                   | 6.1        | 9.2              | 10½                                           | 9.9                        | 61              | 22             | —           |
| CRE 304.1          | ♂ | 58.5                 | 37.6                   | 6.4        | 9.2              | 10                                            | 9.9                        | 67              | 28             | 121.8       |
| CRE 74.5           | ♂ | 58.1                 | 37.1                   | 6.2        | 9.0              | 10                                            | 9.2                        | 49              | 15             | —           |
| LACM 1722          | ♂ | 58.1                 | 36.7                   | 6.4        | 9.0              | 9½                                            | 9.8                        | 54              | 26             | 80.8        |
| UF 10458           | ♂ | 55.7                 | 35.3                   | 5.8        | 8.9              | 10½                                           | 9.2                        | 53              | 21             | 108.8       |
| CRE 174.1          | ♂ | 55.6                 | 36.5                   | 6.0        | 7.8              | 11                                            | 8.4                        | 44              | 16             | 92.3        |
| CRE 75.2           | ♂ | 55.1                 | 34.2                   | 6.5        | 8.8              | 9                                             | 9.4                        | 54              | 25             | —           |
| CRE 174.2          | ♂ | 49.3                 | 31.3                   | 5.7        | 7.4              | 9½                                            | 8.5                        | 44              | 19             | 110.4       |
| CRE 174.4          | ♂ | 44.7                 | 29.2                   | 5.4        | 6.4              | 10                                            | 7.3                        | 41              | 18             | 85.8        |
| CRE 174.5          | ♂ | 41.5                 | 27.5                   | 4.9        | 6.3              | 10½                                           | 6.9                        | 38              | 15             | 74.0        |
| CRE 174.6          | ♂ | 40.8                 | 26.1                   | 4.9        | 6.1              | 10                                            | 6.3                        | 33              | 14             | 54.3        |
| CRE 74.3           | ♀ | 63.6                 | 41.7                   | 6.6        | 8.9              | 10½                                           | 10.1                       | 63              | 21             | 106.9       |
| UMMZ 123673        | ♀ | 61.7                 | 39.5                   | 6.3        | 9.0              | 10                                            | 10.2                       | 70              | 26             | 97.7        |
| UMMZ 123674        | ♀ | 61.2                 | 39.4                   | 6.2        | 8.3              | 10½                                           | 9.0                        | 54              | 31             | 118.1       |
| UF 10457           | ♀ | 61.0                 | 41.0                   | 6.5        | 8.2              | 11½                                           | 8.8                        | 54              | 23             | 117.8       |
| CRE 75.3           | ♀ | 60.0                 | 39.5                   | 6.6        | 8.8              | 11                                            | 9.7                        | 51              | 24             | 98.3        |
| CRE 74.4           | ♀ | 59.4                 | 38.9                   | 6.3        | 8.5              | 11                                            | 9.4                        | 61              | 29             | 119.9       |
| UMMZ 119527        | ♀ | 58.5                 | 37.9                   | 6.5        | 10.0             | 10½                                           | 9.2                        | 70              | 34             | 100.6       |
| UMMZ 123670        | ♀ | 55.7                 | 37.4                   | 6.2        | 8.1              | 10½                                           | 8.7                        | 54              | 26             | 92.2        |
| CRE 174.3          | ♀ | 55.6                 | 36.9                   | 6.0        | 7.2              | 10½                                           | 8.2                        | 42              | 15             | 68.7        |
| UMMZ 123669        | ♀ | 54.5                 | 36.0                   | 6.3        | 8.3              | 10                                            | 8.4                        | 46              | 19             | 100.2       |
| CRE 74.2           | ♀ | 53.5                 | 34.3                   | 6.2        | 8.0              | 11                                            | 9.1                        | 55              | 22             | 96.7        |
| UMMZ 123672        | ♀ | 52.9                 | 34.5                   | 5.7        | 8.0              | 10                                            | 8.6                        | 49              | 21             | 96.3        |
| CRE 74.1           | ♀ | 49.1                 | 30.8                   | 5.8        | 7.6              | 10½                                           | 8.3                        | 53              | 21             | 58.0        |
| UMMZ 123665        | ♀ | 48.9                 | 31.4                   | 5.3        | 7.7              | 10                                            | 8.0                        | 51              | 25             | 67.7        |
| UMMZ 123667        | ♀ | 47.3                 | 29.8                   | 5.7        | 7.8              | 9                                             | 7.3                        | 42              | 26             | 89.8        |
| UMMZ 119529        | ♀ | 45.7                 | 29.4                   | 5.1        | 7.2              | 10                                            | 7.7                        | 42              | 22             | 66.8        |
| CRE 74.7           | ♀ | 45.1                 | 28.0                   | 5.4        | 6.7              | 9½                                            | 7.7                        | 44              | 22             | 70.9        |
| CRE 75.4           | ♀ | 45.1                 | 28.3                   | 5.6        | 7.4              | 10                                            | 7.4                        | 45              | 22             | 73.4        |
| LACM 1723          | ♀ | 42.3                 | 26.2                   | 5.0        | 7.1              | 9                                             | 7.8                        | 42              | 22             | 65.0        |
| LACM 1724          |   | 38.0                 | 23.7                   | 4.6        | 6.3              | 9                                             | 6.6                        | 43              | 18             | 50.1        |
| LACM 1725          |   | 37.2                 | 22.9                   | 4.8        | 6.3              | 9                                             | 7.2                        | 44              | 21             | 53.8        |
| LACM 1726          |   | 36.4                 | 21.8                   | 4.7        | 6.3              | 8½                                            | 6.7                        | 41              | 23             | 50.8        |
| UMMZ 119528        |   | 35.1                 | 22.1                   | 4.3        | 5.9              | 9                                             | 6.2                        | 40              | 17             | —           |
| CRE 304.2          |   | 33.8                 | 20.7                   | 4.3        | 5.8              | 9½                                            | 6.2                        | 38              | 21             | 32.0        |
| CRE 76.1           |   | 32.6                 | 19.7                   | 4.4        | 6.3              | 9                                             | 6.2                        | 42              | 18             | —           |
| CRE 75.5           |   | 30.2                 | 18.3                   | 4.3        | 5.3              | 9                                             | 5.5                        | 29              | 15             | —           |
| CRE 74.6           |   | 29.2                 | 17.0                   | 4.1        | 5.0              | 9                                             | 5.6                        | 34              | 17             | 25.8        |
| UMMZ 119530        |   | 24.4                 | 14.6                   | 3.6        | 4.4              | 9                                             | 4.7                        | 23              | —              | 21.4        |

*Variation:* Tables 1 and 2 present the important comparative measurements and data for the holotype and 41 paratypes. The dorsal color varies from medium light orange-brown to very dark brown with some individuals showing medium or yellow brown bands; the amount of brown patching on the head and tail is variable. Males have slightly longer limbs and more definite truncation of the snout.

*Habitat:* On April 3, 1959, the holotype and 12 of the paratypes were collected on both sides of the large El Angel Waterfall, beside the stream just north of the fall under logs and stones. Most individuals were taken from moss and lichen mats covering the road cuts near the falls where water seepage was constant. Also collected at the type locality were one snake, *Rhadinaea serperastr*, several frogs of the genus *Eleutherodactylus*, and three other salamanders; 3 *Chiropterotriton abscondens*, 1 *Bolitoglossa subpalmata*, and 2 *Oedipina syndactyla*?

TABLE 2. Head and Foot Data on *Oedipina collaris* and *O. poelzi*

|                    |   | Interorbital<br>Distance | Anterior Rim of<br>Orbit to Snout | Anterior Rim of<br>Orbit to Nares | Vomerine Teeth to<br>Premaxillary Teeth | Internal Choanae to<br>Premaxillary Teeth | Distance Between<br>Internal Choanae | Width of Right Foot |
|--------------------|---|--------------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------|--------------------------------------|---------------------|
| <i>O. collaris</i> |   |                          |                                   |                                   |                                         |                                           |                                      |                     |
| USNM 37350         | ♂ | 2.8                      | 4.4                               | 3.6                               | 2.9                                     | 2.6                                       | 2.3                                  | 4.0                 |
| KUMNH 23815        | ♂ | 2.9                      | 4.6                               | 3.7                               | 2.8                                     | 2.5                                       | 2.4                                  | 3.6                 |
| MCZ 9832           | ♂ | 2.4                      | 3.8                               | 3.0                               | 2.7                                     | 2.4                                       | 2.0                                  | 2.7                 |
| <i>O. poelzi</i>   |   |                          |                                   |                                   |                                         |                                           |                                      |                     |
| CRE 74.3           | ♀ | 2.0                      | 2.7                               | 2.1                               | 1.9                                     | 1.6                                       | 1.6                                  | 2.2                 |
| CRE 75.3           | ♀ | 1.8                      | 2.8                               | 1.9                               | 1.8                                     | 1.7                                       | 1.7                                  | 2.4                 |
| CRE 304.1          | ♂ | 2.1                      | 2.9                               | 2.1                               | 2.0                                     | 1.8                                       | 1.8                                  | 2.2                 |
| LACM 1722          | ♂ | 1.8                      | 2.8                               | 2.1                               | 2.1                                     | 1.8                                       | 1.8                                  | 2.2                 |
| CRE 75.2           | ♂ | 1.7                      | 2.7                               | 1.8                               | 2.1                                     | 1.9                                       | 1.7                                  | 2.1                 |

*Relationships:* Similarity of body form, long limbs, bulk and great length, link *Oedipina poelzi* more closely to *O. collaris* than to any other member of the genus. Important differences in snout length and shape (Fig. 1) and coloration serve as significant distinguishing characters. *Oedipina poelzi* differs from the long robust-limbed *O. elongatus*, *O. parvipes*, and *O. complex* by having more costal grooves (19 per side in *poelzi* versus 17 per side) and from the short slender-limbed species, by having longer legs and wider heads.

*Range:* *Oedipina poelzi* is known presently only from the slopes of the Cordillera Central, north of the cities of Heredia, San Jose, and Turrialba, in north central Costa Rica from 3000 feet to 5100 feet (915 meters to 1555 meters). (See map, Fig. 2).

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